Zero Retries issue 0158 2024-06-28

Zero Retries is an independent newsletter promoting technological innovation that is occurring in Amateur Radio, and Amateur Radio as (literally) a license to experiment with and learn about radio technology. Now in its third year of publication, with 1800+ subscribers. Radios are computers - with antennas!

About Zero Retries

Steve Stroh N8GNJ, Editor

Jack Stroh, Late Night Assistant Editor Emeritus

In this issue:

- **Request To Send**
- **Two Projects for Making Amateur Radio Open Source Software Easier to Find and Use**
  - **Radio Catalog: Ham Radio Software Preservation and Restoration**
  - **Open Source in Amateur Radio Wiki**
- **ZR > BEACON**
  - **Darryl Smith VK2TDS Highlighted in ARDC Newsletter**
  - **Digital only POTA Activation using FT8 on the sBitx V3**
  - **ARDC Grantees Include Society of Women Engineers (SWE) 2023 Programs**
  - **Followup on Fixing the Linux Kernel AX.25 ARDC Grant**
  - **BBS and email for Meshtastic**
- **Join the *Fun* on Amateur Radio**
- **Closing The Channel**
- **Footnotes for this Issue**

Web version of this issue - https://www.zeroretries.org/p/zero-retries-0158

Request To Send

Commentary by Editor Steve Stroh N8GNJ

Paid Subscribers Update

My thanks to **Rick Gilmore W3TM** for becoming an Annual Paid Subscriber to Zero Retries this past week! He included this nice message:

> I learn something new in every post. And learning is what this grand hobby is about, IMHO.

My thanks to **Eric Stammers M0REQ** for becoming an Annual Paid Subscriber to Zero Retries this past week!

My thanks to **Prefers to Remain Anonymous 34** for becoming an Annual Paid Subscriber to Zero Retries this past week!

Financial support is a real vote of confidence for continuing to publish Zero Retries!

Major Conference Countdowns

- **HAM RADIO 2024** in Friedrichshafen, Germany on 2024-06-28 thru 30 - *this* weekend. I've received some hints that there will be some interesting projects shown there. Zero Retries readers that will be attending HAM RADIO 2024, please provide some reports of Zero Retries Interesting projects and products.
- **JARL Ham Fair 2024** in Tokyo, Japan on 2024-08-24 and 25, in *8* weeks!

See the Zero Retries Guide to Zero Retries Interesting Conferences for other such events.

Zero Retries Correspondents Wanted - Australia, Brazil, Germany, India, Japan, Mexico, etc.

Of necessity, most of what I report as Zero Retries Interesting here in Zero Retries is US-centric, with occasional contributions from Zero Retries readers, and occasional stories about ZRI developments in Europe (such as QO-100) and Japan. I'd really like to cover *more frequently* the Zero Retries Interesting

developments occurring in countries with active Amateur Radio technical activities - data communications, satellite / space, creation of interesting, specialized Amateur Radio hardware, etc.

I'm not asking for folks to write an article. While I feature co-authors whenever I'm offered articles, I understand that writing an article is daunting to most folks in this era. The more usual circumstance these days is for folks to get in touch with me and point out something that's Zero Retries Interesting. I take it from there, with credit to the correspondent (if they want). To keep Zero Retries interesting and relevant, I need folks like you Zero Retries readers to tell me what's going on - point me to local clubs doing Zero Retries Interesting things, data networks, technical activities, etc.

*Please **don't take offense** if I don't feature your info (there are times when there are just too many items to include), or that I've previously mentioned your info in a previous issue of Zero Retries. It's better to be over-informed than under-informed. If I really miss something significant, please remind me*.

The countries listed in the headline are my biggest "mystery countries" at the moment, with practically no visibility about Zero Retries Interesting Amateur Radio activities there.

I hope Zero Retries readers can help. If I get at least a few volunteers, I'll set up an email list for "Zero Retries Contributors" where we can be in touch with each other instead of purely private correspondence with me (though that is, of course, an option if you'd prefer).

Google NotebookLM

Speaking of "previously mentioned your info in a previous issue of Zero Retries", there are times that *I* forget what I've covered. It's also painful at times to find *when* I've mentioned something in a previous issue of Zero Retries. Substack's search tool has become ineffective because it now defaults to also searching other Substack publications… and items in Zero Retries are already obscure and hard to search for.

But citing previous articles is a significant part of Zero Retries and with three years of weekly issues, it's getting ponderous to do manual searches. To help with that I've experimented with pouring a subset of text versions of Zero Retries into a single file so I can do faster searches. That didn't go well.

But a fellow writer, of much longer standing and much greater stature than I experienced the same frustrations, and his public plaints on the matter were heard. A few years ago Steven Johnson was invited to join the team that created Google's new NotebookLM. *That* sounds like that's exactly the tool that I've been hoping for. My "Zero Retries Notebook" in Notebook LM will be *restricted entirely to the content I put* into each notebook. *All* I have to do is to finish exporting all three years of Zero Retries into PDF versions, which unfortunately is a semi-manual process because of the odd ways Substack creates its web pages, I usually have to fuss with the creation of the PDF to get it to turn our right. If I "respected" Substack's warnings about "too large for email" then I could have shortcut this process by exporting just the email versions of Zero Retries, but oh well.

I've become wary of investing my efforts in Google projects… because Google has, in my opinion (and others) become actively predatory, *and* because Google has become infamous for its many Killed by Google projects. But I haven't seen a better alternative than NotebookLM for my specific requirements for Zero Retries, and Johnson is a trusted name in non-fiction writing and he's putting his name behind NotebookLM. Plus, having created the PDF library, my data will be secure and under my control, and it's all public anyway, in the likely event that Google decides to "overshare" my Zero Retries Notebook in .

With those factors, a Zero Retries NotebookLM seems worth a try. A bonus will be that I can do limited sharing of the Zero Retries NotebookLM, and since the sharing is limited, that may end up being a perk of Zero Retries paid subscribers.

Just to stretch your imagination a bit, NotebookLM can be used with any collection of PDFs. Given that 73 Magazine is already in PDF form, that might be my next NotebookLM project.

Guilty of Optimism

As I put the finishing touches on this issue Friday morning, I had an email exchange about politics with an old friend, and they accused me of optimism (as in the opposite of realism)… and I replied that I wear the epithet of "Optimist" with pride.

It's easy to be pessimistic about the future of Amateur Radio. It's an activity that was begun in the early years of the previous century and in this modern society of wristwatches having their *own cellular radios*, *light bulbs* having a TCP/IP stack and a Wi-Fi radio, and mobile phones now having *direct-to-satellite connectivity*… it's easy to think of Amateur Radio as an anachronism. The "realistic" point of view about Amateur Radio is that it is inevitably declining - in licensees, in relevance to society, in innovation, etc.

But from my "optimism" perspective, I believe that Amateur Radio has a role to play in the 21st century as our society has transitioned wholly to radio technology for the last miles, last few feet, and last few inches our electronic communications. Just as the previous century required vast numbers of those skilled in working with internal combustion engines, this century will require vast numbers of those who understand radio technology beyond the simple act of plugging in a Wi-Fi access point or using a mobile phone.

Amateur Radio is a perfect vehicle for developing such knowledge and skills and Zero Retries is a testament to that perspective and my optimism about Amateur Radio.

Happy Independence Day

To Zero Retries readers in the US, ***Happy Independence Day*** this coming Thursday. Despite our vast shortcomings as a nation and as a people, we continue to struggle to continually create a "more perfect union" for 248 years now. Despite sometimes vastly different perspectives between us, we collectively continue to try to make ourselves better as a nation and as a people. For my part, I consider myself *blessed beyond all reason* to have been born in the US and thus a US citizen with no effort on my part. Many wonderful friends of mine were not similarly blessed. That they chose to work very hard and sacrifice much to become citizens of this incredibly imperfect nation tells me that the US is at least doing some things right.

73,

Steve N8GNJ

Leave a comment

Share

Two Projects for Making Amateur Radio Open Source Software Easier to Find and Use

By Steve Stroh N8GNJ

One of the most significant issues in Open Source development in Amateur Radio is the creation of multiple, sometimes incompatible implementations of various applications or functions that are made available as open source software (or hardware) … somewhere… (often somewhere obscure, such as a personal blog or website). Various implementations of the AX.25 stack for use with Linux comes readily to mind as an example of this issue. Two recent projects should start helping to make various Open Source Software much more visible so that there is less "reinvention" needed, and thus more (defacto) standardization and interoperability.

Radio Catalog: Ham Radio Software Preservation and Restoration

> Ham software is becoming increasingly hard to find. Decades worth of development person-years are at risk of being lost.
>
> I've noticed a lack of best practices for managing the open source software projects that many hams have built and rely on over the past couple decades. It's understandable given that these were often hobby projects, but it would be a shame to lose some of the great contributions to our community. As many of these hams are getting older or become silent keys it becomes increasingly difficult to locate many of the original source files for these projects. This is often due to these sources no longer being hosted on their original sites, entire domains being taken offline, link rot, or for a number of other reasons.
>
> I propose building a software catalog to aggregate many of these long-standing, open source ham software projects into history preserving code repositories using git, a modern source control management system and the Digital Library of Amateur Radio & Communications (DLARC) archive. These code repositories would also serve as a place for continuous future development and iteration. I'm a software engineer in my day job and it's something I would be very interested in helping put in place. I believe it would go a long way to making these projects remain accessible and relevant across our ham community going forward.
>
> List of 10 software projects for preservation:
>
> - ardopc - mode for HF Winlink
> - QtSoundModem - multi-platform port of UZ7HO's SoundModem
> - arim - Amateur Radio Instant Messaging
> - rmsgw - Linux RMS Gateway for Winlink
> - ax25mail - Utilities for packet radio mail exchange with the BBS
> - 4NEC2 - Antenna Simulation and modeling software
> - LinFBB - F6FBB BBS software for bulletins and messages distribution via Packet Radio and wired networks
> - OpenBCM - packet radio mailbox system by DL8MBT
> - Linpac - A modular console-oriented amateur radio AX.25 keyboard to keyboard chat and PBBS program
> - Paclink-unix - A UNIX/Linux client for the Winlink 2000 ham radio email

(Excerpts of the grant proposal used with permission of Rob Hernandez KM6BLU.)

While ARDC has not made this (approved) grant public, I received permission from the principal of this grant, Rob Hernandez KM6BLU to mention this project in Zero Retries.

~~At present, there is not yet an online presence for this work as their grant was only recently approved and KM6BLU and his collaborators are just getting the work organized.~~

Update 2024-06-30 - At present, there is not yet an online presence for this work as their grant was only recently approved and KM6BLU and his collaborators - Paul Harvey M0SET and Matthew Croughan are just getting the work organized with their fiscal sponsor - National Upcycled Computing Collective (https://www.nuccinc.org).

Although this team's initial software projects to preserve is a good start[1], there are many such open source projects that are equally critical and influential within Amateur Radio, and thus the *methodology, standards, display format, etc*. that KM6BLU and team will develop for this work will be probably more foundational for Amateur Radio in the long term.

I'll be watching this work and am looking forward to reporting on this project in future issues of Zero Retries.

Open Source in Amateur Radio Wiki

Michael Clemens DK1MI / N1BSD on Reddit r/amateurradio:

> [OpenSource.radio] is a wiki, which in the first step categorises and lists all open source software and hardware projects for amateur radio that I/we know of. Later, more detailed pages on the individual projects will be added. I also envisage adding setup descriptions for open source based amateur radio stations or collections for GNU Radio blocks/flowcharts or Node Red flows, functions and scripts.

Open Source in Amateur Radio

Image courtesy of OpenSource.radio

> Welcome to the Open Source in Amateur Radio wiki! This resource is dedicated to providing information about open-source software and hardware as well as free home-brew projects for amateur radio enthusiasts. The idea of this website or wiki is to give a (future) radio amateur an overview of all available open source projects. The aim is to promote the use of open source software and hardware in amateur radio. Depending on personal requirements, it is now possible to set up an amateur radio station whose main components are open source.

The OpenSource.radio Wiki (clever domain name!) is also a recent project which has a similar goal (at least in my mind) of creating a directory of Amateur Radio Open Source projects (notably, *not just software*) and thus would also serve the goal of reducing the creation of multiple, sometimes incompatible implementations of various applications or functions that are made available as open source. In short, why reinvent something if someone has already done it? The trick, prior to this project, is knowing that a specific open source project *even exists*; it's tough to search for an open source implementation if you don't know if such a project exists, and especially its name.

OpenSource.radio is off to a good start, and I plan to get involved in adding to it with some of my favorite open source projects such as adding to the Packet Radio section.

The current nine contributors could use some additional help:

> **Help!**
>
> This wiki cannot be filled and maintained by one person alone, which is why I call on people to **register** on the wiki in order to **correct errors, add information, translate articles and/or create new content**.
>
> Please visit How to contribute for further information.

I'm sure there are many able contributors in the Zero Retries readership.

Wikipedia - List of Amateur Radio Software

Lastly, this Wikipedia article seems to be a poorly maintained or abandoned list of *some* software used in Amateur Radio. While there are a few mentions of proprietary software, most items seem to be open source software.

While this article is within the semi-authoritative easy to find Wikipedia… the OpenSource.radio Wiki seems to be the better project for contributing one's efforts to document the many open source projects within Amateur Radio that have been developed over the decades. We're just going to have to figure out how to insure its survival as an information database - at a minimum, regularly "snapshotted" by Internet Archive's Wayback Machine and perhaps regular mirroring to other sites.

Leave a comment

Share

ZR > BEACON

By Steve Stroh N8GNJ

Short mentions of Zero Retries Interesting items.

Darryl Smith VK2TDS Highlighted in ARDC Newsletter

ARDC Newsletter June 2024 (not yet posted on their website):

> A member of the inaugural [Grants Evaluation Team - GET], Darryl has enjoyed analyzing the results of the work that ARDC has funded, stating "I feel privileged to be a part of the team." Licensed in Sydney, Australia more than 30 years ago, Darryl became a ham to experiment with packet radio and has "loved every minute of it." After many years of focusing on VHF, Darryl got his first HF radio early last year. When he's not volunteering at ARDC or on the air, Daryl is a consultant electrical engineer, where he had the amazing opportunity to work as a microwave and satellite engineer & RF technician on the set of Furiosa - A Mad Max Saga, work he cites as the work he's most proud of. In his spare time, Darryl also enjoys recreational running, where he averages running about one marathon a year.

VK2TDS is also beginning his 8th three-year term as a Board Member of TAPR.

I'm looking forward to seeing Furiosa when it's available on one of my streaming services, especially now knowing that VK2TDS was working on the complicated communications required for that movie.

Digital only POTA Activation using FT8 on the sBitx V3

David Saylors WK4DS on his WK4DS Amateur Radio Blog:

> So today was a good day for radio. I had a block of time and wanted to see how hard it would be to get the activation only on FT8. I know it is possible to do this, but I also wanted to do it on 15 meters too and that is where the problems come in. You see the last couple of weeks have

been tough for 15 meters operations what with the solar flares and CMEs and all. So to secure the activation on the higher bands will be… interesting…

…

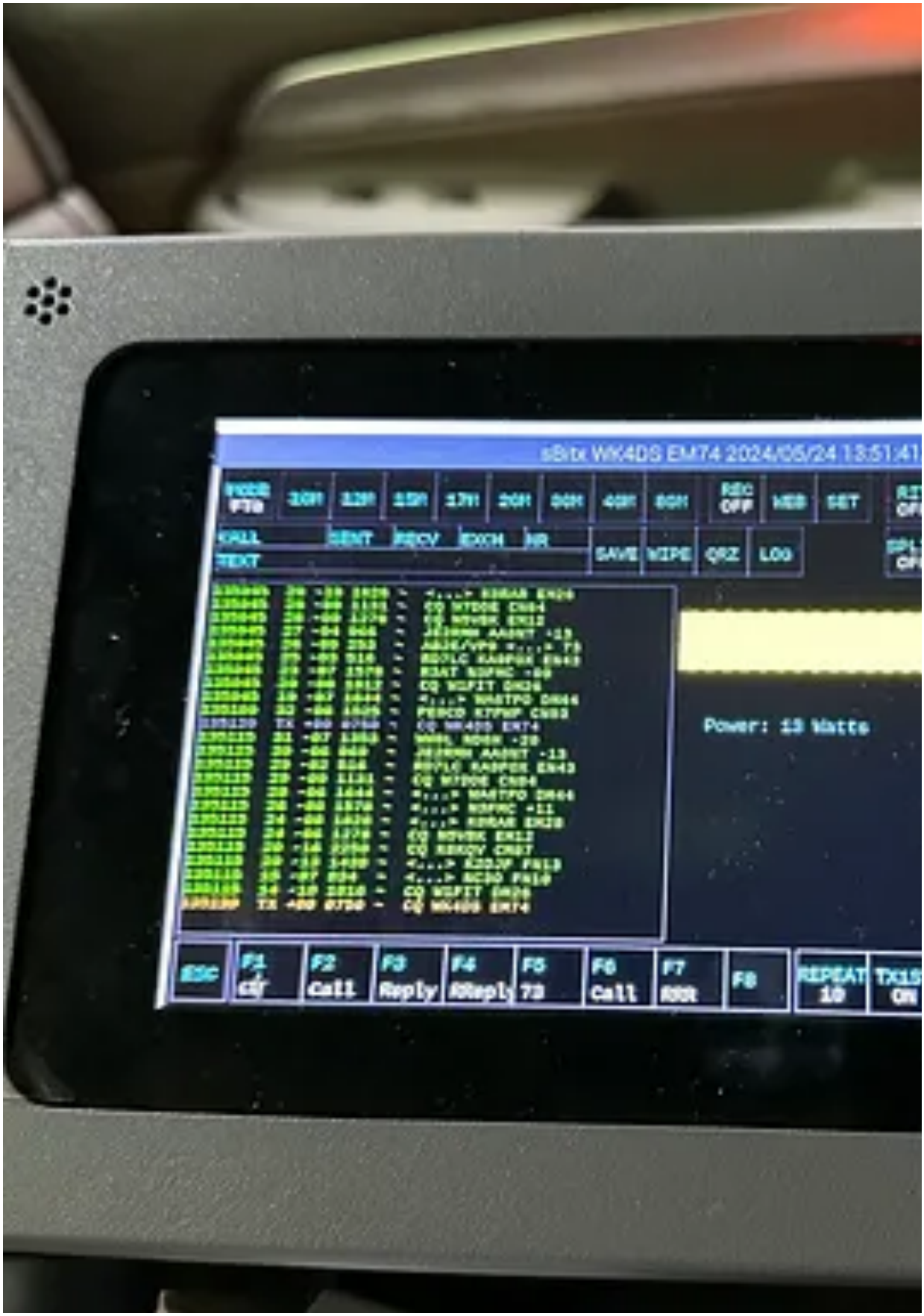

Image courtesy of David Saylors WK4DS

> One of the things that I like most about this radio is the clean layout of the FT8 mode. It is not cluttered with an endless array of different information and on screen settings. The other programs, while very versatile and powerful, are rife with buttons and information that really is not needed for simple QSO contacts. The sBitx could be a little easier though so it is not perfect either. One thing that has come up a couple of times is that it needs the ability to be able to sort the information display to just stations calling CQ so you can pick one easier. I agree with this as it can be tough to grab a calling station in that 2.5 second window of time. So being able to sort by CQ would be a big help there. One other thing that is mildly frustrating is that there is no way to scroll the display so if there is a lot of stations on the band then you will not be able to see them all. It pushes them off the top of the screen and then they are just gone.

What WK4DS did as a Parks On The Air (POTA) activation with a data-only radio (in his case, the sBitx v3), is pretty much what I was imagining for a data-only Field Day activity. Based on a Raspberry Pi, the sBitx v3 seems so elegantly designed for data use. I didn't know what exactly I was looking for until I saw it with the sBitx v3, which is now on my wish list… unless perhaps the zBitx becomes a reality.

My thanks to Amateur Radio Weekly Issue 336 for the pointer to this story.

ARDC Grantees Include Society of Women Engineers (SWE) 2023 Programs

I thought this post from ARDC about the impact of their grantmaking was Zero Retries Interesting:

> **Society of Women Engineers (SWE): SWE 2023 Programs**

Image courtesy of Society of Women Engineers

> The Society of Women Engineers (SWE) is an organization that promotes diversity and inclusion in STEM fields. In 2023, ARDC funded 30 of SWE's Global Scholarships, as well as contributed to multiple programs that help women in engineering fields excel professionally and showcase their achievements. Last month, SWE published a blog post that included testimonials from scholarship recipients, emphasizing the significance of ARDC-funded scholarships on their educational pursuits. You can check out the blog post in its entirety at https://alltogether.swe.org/2024/05/the-impact-of-the-ardc-foundations-scholarships-for-women-in-engineering/.
>
> ARDC also supported a first-time analysis into the impact of SWE scholarships on women pursuing a STEM degree. The results of this analysis can be found at https://swe.org/research/2024/the-impact-of-swe-scholarships-on-retention-in-engineering-and-computer-science/.
>
> Funding also supported the SWENext High School Leadership Academy. You can check out a year in review of the SHLA program in this blog post: https://alltogether.swe.org/2024/06/fy24-shla-year-in-review/.
>
> The Community Collegiate Affiliate Support & Expansion (CCASE) is designed to encourage more women in community colleges, particularly those facing exceptional financial challenges and from underrepresented backgrounds, to pursue a STEM degree. In its first program year, CCASE helped establish seven new community college affiliates/sections and added 81 SWE members.

Pull quote of the study that ARDC supported:

Research indicates that women pursuing bachelor's degrees in STEM switch to non-STEM fields at higher rates than men, with 32% of women major switching compared to 26% of men. Overall, less than half of women persist in their bachelor's degree programs in STEM.

…

The impact of a SWE scholarship is remarkable! Almost 88% of undergraduate scholarship recipients have either earned or are still pursuing a STEM degree, with 97% of these STEM students majoring in engineering or computer science.

That result is fantastic! Note that Amateur Radio isn't mentioned, and there's no Amateur Radio involvement in the SWE scholarships (you don't have to be an Amateur Radio Operator)… but I cannot imagine that those scholarship recipients didn't take note that an organization called ***Amateur Radio*** *Digital Communications* helped to fund their STEM degree.

Followup on Fixing the Linux Kernel AX.25 ARDC Grant

> **Grant: Fixing the Linux kernel AX.25**
> Date: December 2021
> Amount: €179,690
>
> Changes to the Linux kernel over the years have improved and modernized the kernel, but have also made existing AX.25 implementations incompatible and turned preexisting issues into bugs. This can make systems unpredictable or even unusable. Linux kernel development is complex, requiring deep specialized knowledge, and bugs are hard to trace. This may be one of the reasons, why the Linux kernel AX.25 stack is currently in such a bad state.
>
> This ARDC grant funds will allow the Deutscher Amateur Radio Club to hire software developers who can create a stable Linux AX.25 implementation and prevent Linux distributions from dropping pre-compiled AX.25 support. The fixed and functional Kernel-AX.25 stack will improve global amateur radio infrastructure. Professional kernel development can bring Linux AX.25 back to life.

It's a shame that ARDC rarely issues status reports on how grants like this turned out. ARDC formed a Grants Evaluation Team (GET) in 2024, but to date, there have been no results from that team publicly disclosed.

Now, two and a half years after this grant was awarded, we get a small glimpse of the outcome of this grant from a brief statement on ARDC's 44Net email list by ARDC Grants Manager Chelsea Párraga KF0FVJ:

> The AX.25 team ran into some challenging circumstances and they were unable to carry out the grant. In these situations we work with the grantee to return funds to us. If you'd like to know more about the project I suggest reaching out directly to those working on it!

Of course, the above description is *all that ARDC has publicly released about this grant*, and thus *there is no contact information* for "those working on it" provided by ARDC for us to to *actually be able* "reach out directly". Since there was no progress on this grant, there seems little point in further followup. But given that unless ARDC chooses to feature a grant in one of their stories, which usually includes names of those involved with the grant, ARDC doesn't otherwise disclose details about their grants such as the names and contact info associated with the grant… so that it actually is possible to "reach out directly".

Such lack of detail when ARDC does report a grant being made, and lack of followup (publicly reported) on most of the ARDC grants, even years later, has been a continuing frustration to those of us following ARDC's grantmaking.

BBS and email for Meshtastic

TheCommsChannel / TC2-BBS-mesh on Github:

> This is the TC²-BBS system integrated with Meshtastic devices. The system allows for message handling, bulletin boards, mail systems, and a channel directory.

YouTube video - BBS and Mail for Meshtastic! (queued for future watching), unfortunately no transcript available to excerpt.

As an active participant in the rise of Packet Radio systems in Amateur Radio, it's fascinating to me to see the rapid evolution of Meshtastic and seemingly exponential interest in building out Meshtastic networks as a hobby activity. Now Meshtastic users will be able to discover the fun and utility of Bulletin Board Systems.

While Meshtastic does feature better physical layer technology (Semtech's proprietary LoRa, an implementation of Chirp Spread Spectrum) versus Amateur Radio's 1200 bps Audio Frequency Shift Keying, Meshtastic users will soon discover the limits of simple radio physics - crowded channels, low throughput, and the limitations of ad-hoc mesh networks when they become popular and over-used.

We experienced Amateur Radio Operators could, and I would argue *should* get involved with our local Meshtastic activities and offer our perspective of what has worked in the past, at least to the limits of what the LoRa technology is capable of.

And perhaps, as we "tap into" the energy and excitement of these new Meshtastic users and networks, we can rediscover some energy and excitement that we can apply to recreating what we know now to work in Amateur Radio networking. Things such as leveraging the vastly better technology we now have available - higher speed modems, forward error correction, more robust modulation techniques, etc. And… rediscovering the fun of building something collaboratively with our fellow Amateur Radio Operators.

Leave a comment

Share

Join the *Fun* on Amateur Radio

If you're not yet licensed as an Amateur Radio Operator, and would like to join the fun by *literally having a license to experiment with radio technology*, check out
Join the Fun on Amateur Radio for some pointers.

Zero Retries Frequently Asked Questions (FAQs) — In development 2023-02.

Closing the Channel

In its mission to highlight technological innovation in Amateur Radio, promote Amateur Radio to techies as a literal license to experiment with radio technology, and make Amateur Radio more relevant to society in the 2020s and beyond, Zero Retries is published via email and web, and is available to everyone at no cost. Zero Retries is proud *not to participate* in the Amateur Radio Publishing Industrial Complex, which hides Amateur Radio content behind paywalls.

My ongoing ***Thanks*** to:

- Tina Stroh KD7WSF for, well, *everything!*
- ***Founding Members*** **who generously support Zero Retries financially:**
  Founding Member 0000 - Steven Davidson K3FZT
  Founding Member 0001 - Prefers to Remain Anonymous 01

  Founding Member 0002 - Chris Osburn KD7DVD
  Founding Member 0003 - Don Rotolo N2IRZ
  Founding Member 0004 - William Arcand W1WRA
  Founding Member 0005 - Ben Kuhn KU0HN
  Founding Member 0006 - Todd Willey KQ4FID
  Founding Member 0007 - Merik Karman VK2MKZ
  Founding Member 0008 - Prefers to Remain Anonymous 14
  Founding Member 0009 - Prefers to Remain Anonymous 19
- Numerous Annual and Monthly subscribers who also generously support Zero Retries financially!

Want to Support Zero Retries?

- The *most* effective way to support Zero Retries is to simply mention Zero Retries to your co-conspirators that are also interested in knowing more about technological innovation that is occurring in Amateur Radio and encourage them to become a fellow subscriber.
- One particularly effective method of promoting Zero Retries is to add a mention of Zero Retries to your QRZ page (or other web presence) and include a link:

  https://www.zeroretries.org
- If you'd like to financially support Zero Retries, becoming a paid subscriber is *greatly* appreciated and helps offset expenses incurred in publishing Zero Retries. Paid subscriptions for Zero Retries are *entirely optional*, as explained in this special issue of ZR:
  Zero Retries Administrivia - Activating Payment Options.

These blogs and newsletters regularly feature Zero Retries Interesting content:

- Dan Romanchik KB6NU mentions "Zero Retries Interesting" topics so regularly on his blog (that I otherwise wouldn't know about) that I've bestowed on him the honorific of Pseudostaffer.
- Jeff Davis KE9V also mentions "Zero Retries Interesting" topics so regularly on his blog (that I otherwise wouldn't know about) that I've bestowed on him the honorific of Pseudostaffer.
- Amateur Radio Weekly by Cale Mooth K4HCK is a weekly anthology of links to interesting Amateur Radio stories that often feature "Zero Retires Interesting" topics.
- Experimental Radio News by Bennet Z. Kobb AK4AV discusses (in detail) Experimental (Part 5) licenses issued by the US FCC. It's a *must-read-now* for me!
- RTL-SDR Blog - *Excellent* coverage of Software Defined Radio units.
- TAPR Packet Status Register has been published continuously since 1982.
- Hot Iron - The Journal of the Constructor's Club is a delightful quarterly newsletter.
- Other Substack Amateur Radio newsletters recommended by Zero Retries.

These YouTube channels regularly feature Zero Retries Interesting content:

- HB9BLA Wireless by Andreas Spiess HB9BLA
- KM6LYW Radio by Craig Lamparter KM6LYW (home of the DigiPi project)
- Modern Ham by Billy Penley KN4MKB
- Tech Minds by Matthew Miller M0DQW

These podcasts regularly feature Zero Retries Interesting content:

- Ham Radio Workbench by George Zafiropoulos KJ6VU (and friends)
- Foundations of Amateur Radio by Onno Benschop VK6FLAB

Zero Retries is currently using the Substack email publishing platform to publish Zero Retries. It's particularly suitable for small newsletters as you can get started for no cost.

If you're reading this issue on the web and you'd like to see Zero Retries in your email Inbox every Friday afternoon, just click below to join ***1800+*** other subscribers:

Subscribe now

Please tell your co-conspirators about Zero Retries — just click:

Share Zero Retries

Offering **feedback or comments** for Zero Retries is equally easy — just click:

Leave a comment

If you're a fellow smart person that uses **RSS**, there *is* an **RSS feed for Zero Retries**.

Social Media:

Zero Retries (N8GNJ) is on Mastodon — n8gnj@mastodon.radio — just click:

Zero Retries / N8GNJ on Mastodon

Zero Retries (N8GNJ) is also on Bluesky — @n8gnj — just click:

Zero Retries / N8GNJ on Bluesky

Email issues of Zero Retries are "instrumented" by Substack to gather basic statistics about opens, clicking links, etc.

More bits from Steve Stroh N8GNJ:

- SuperPacket blog — *Discussing new generations of Amateur Radio Data Communications — beyond Packet Radio (a precursor to Zero Retries)*
- N8GNJ blog — *Amateur Radio Station N8GNJ and the mad science experiments at N8GNJ Labs — Bellingham, Washington, USA*

Thanks for reading!
Steve Stroh N8GNJ / WRPS598 (He / Him / His)
These bits were handcrafted (by a mere human, not an Artificial Intelligence bot) in beautiful Bellingham (The City of Subdued Excitement), Washington, USA, and linked to the Internet via **Starlink *Satellite* Internet Access**.

2024-06-28

Blanket permission is granted for TAPR to use any Steve Stroh content in Zero Retries for the TAPR Packet Status Register (PSR) newsletter (I owe them from way back).

Blanket permission is granted for *Amateur Radio use* of any Steve Stroh content in Zero Retries for Amateur Radio newsletters and distribution via Amateur Radio such as (but not limited to) Packet Radio Networks, Packet Radio Bulletin Board Systems, Repeater Nets, etc.

In such usage, please provide appropriate authorship credit for the content.

If you'd like to republish an article in this issue for other uses, just ask.

All excerpts from other authors or organizations, including images, are intended to be fair use. *Unless otherwise noted in the article*, there are no paid promotional items in any Zero Retries articles.

Portions Copyright © 2021, 2022, 2023, and 2024 by Steven K. Stroh.

Footnotes for this Issue

1

To that list, I would have included KA9Q NET, KA9Q NOS, ka9q-radio, Dire Wolf Software TNC, G8BPQ BBS and other G8BPQ utilities, Xastir, D-RATS, FreeDV, FreeDATA, and JNOS.